

NEW YORK UNIVERSITY—MEDICAL DEPARTMENT.

A

LECTURE,

INTRODUCTORY TO A COURSE

ON

THE INSTITUTES OF MEDICINE AND MATERIA MEDICA,

FOR THE

SESSION OF MDCCCXLVII—VIII.

BY

MARTYN PAINE, A. M., M. D.

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"Men are not still the same; our appetites
Are various, and inconstant as the moon,
That never shines with the same face again;
'Tis Nature's curse never to be resolved,
Busy to-day in the pursuit of what
To-morrow's eldest judgment may despise."
Southern.

NEW YORK:

JOSEPH H. JENNINGS, PRINTER, 122 NASSAU STREET.

1847.

LECTURE.

INSTRUMENT TO A COURT

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To move a child through what
 they do in the present to what
 they want to do in the future
 This is the aim of the course
 And the aim of the course is to
 move a child through what they
 do in the present to what they
 want to do in the future

NEW YORK:

JOSEPH E. LEONARD, PRINTER, 124 NASSAU STREET.

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NEW YORK, November 4th, 1847.

PROFESSOR PAINE,—

Sir—At a meeting of the Students of the University Medical College, held yesterday, November 3d, H. McNEILL of North Carolina being in the Chair, and O. L. BARNES of Georgia acting as Secretary, it was unanimously

Resolved, That a Committee be appointed to request of the several Professors a copy of their Introductory Lectures for publication.

We, who have the honor to constitute the above Committee, would, in behalf of the Class, respectfully request a copy of your able and eloquent address, delivered on the evening of the 28th ult.

With great respect and esteem, we are, yours, &c.

F. A. STANFORD, *Georgia.*

G. T. ELLIOTT, Jr. *New York.*

W. A. HAMMOND, *Pennsylvania.*

J. S. STIGER, *New Jersey.*

J. R. SLAUGHTER, *Alabama.*

M. WHITAKER, *North Carolina.*

N. A. CHAPIN, *New Hampshire.*

H. BURGESS, *Connecticut.*

H. B. C. HARRIS, *Virginia.*

E. W. H. BECK, *Indiana.*

C. McKNIGHT, *Rhode Island.*

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J. G. BUCHANAN, *Ohio.*

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J. M. OGDEN, *East Canada.*

E. PERRY, *West Canada.*

LEON D'ALVEAR, *So. America.*

W. W. HARPER, *Louisiana.*

ELIHU EDMUNDSON, *Tennessee.*

A. HALLETT, *New Brunswick.*

W. J. RUTHERFORD, *Jamaica.*

W. WALLEN, *Florida.*

J. T. M'LEAN, *Mississippi.*

L. D. SHEETS, *Maryland.*

G. W. PEER, *Arkansas.*

W. H. DIAL, *Texas.*

J. POSTON, *Kentucky.*

A. C. DEANE, *Massachusetts.*

G. L. JONES, *Vermont.*

W. K. FRENCH, *Maine.*

A. S. PETIT, *Illinois.*

By order of the Committee,

O. L. BARNES, *Secretary.*

MESSRS. F. A. STANFORD, G. T. ELLIOTT, and others,
a Committee of the Medical Class of the University.

Gentlemen,—In answer to your polite note received this day, I shall take much pleasure in supplying you with a copy of my late Introductory Lecture for publication.

Have the goodness to convey to the Class whom you represent my sense of obligation for their courtesy, and accept for them and yourselves my sentiments of respect and esteem.

MARTYN PAINE.

New York, Nov. 5, 1847.

INTRODUCTORY LECTURE.

IN looking abroad upon organic nature, its most remarkable feature is the variety by which it is distinguished. So great, indeed, is the diversity of form, of organization, and of vital characteristics, the careless observer regards the assemblage as a mass of heterogeneous objects which have few affinities, and often without a remote relationship. He looks upon man as fundamentally distinct from the brute; and wherever specific differences are strongly marked, the same isolation obtains as we descend in the scale of existences. Coming, at last, to the vegetable kingdom, there is so little apparent analogy with the prominent features of the animal race, that none but the physiologist can detect a shadow of resemblance between the two departments of the organic kingdom. How different, however, with him who has explored the whole by the light of science. Whatever the color or the conformation of man, he is always endowed with certain attributes which give to the critical inquirer as perfect an assurance of identity of species as the clearest demonstration enables the ignorant to decide that there is no other difference than color in a brood of chickens. By the same course of observation the philosopher, ~~after~~ descending along the thousands of species which make up the tribes of animals, finds himself wonderfully imitated in form, structure, and functions, by apes and baboons, and taking in his way other species which are as nearly allied to the ape as the ape is to man, he obtains more humiliating resemblances in yet inferior animals; and by thus pursuing the chain of close affinities as one species is only a little removed from the next above, he is ultimately brought to the startling conclusion that he is on common ground with the worm of the dust, as it regards the great plan of organic life. Nay, more, when he penetrates the world of plants, he sees his semblance in every tree, in every herb, and submits to a close alliance with the mushroom and the parasite.

He partakes, in common with the whole, the same elementary composition, the same principle of life, the same functions by which he came into existence, the same by which his growth is carried on, and is finally alike resolved into those elements which he was incapable of uniting into organic compounds, but for the union of which he was dependent upon vegetable structure. He enjoys, however, but only in common with all other animals, a superaddition to his essential or vegetable

whole

life in the nervous system and the organs of sense, which are particularly associated with it. In ~~the~~ moral attribute of ~~instinct~~ he offers strong points of resemblance to many of the most humble in the scale of being; but in ~~this respect he is greatly inferior~~. Man, therefore, finds himself contradistinguished from the vegetable tribes, in respect to the great plan of life, in little else than a more complex structure; and what is superadded to answer the purposes of sensual enjoyment, he holds in common with the kingdom of which he is the head. So far, then, he is only *primus inter pares*,—the first among his equals.

It is true, he walks erect, and has distinguishing powers of articulation, though there are none of us who sing so sweetly as the birds. But who else than man could have traced out this magnificent system of affinities, or have shown his relationship to every moving thing, and to every plant that grows? That is his prerogative alone, and it is that thinking, immortal principle which separates him so widely from all other created existences as to establish a relationship, a companionship with God himself. In this aspect of his nature, he stands alone upon earth, and looks up to Heaven for an intimate alliance with that Supreme Intelligence who had laid the plan of his general economy in harmonious relation to those objects which were created for his uses and happiness. In the one, he realizes an infinite wisdom and power in his physical connections which attend his being upon earth; in the other, he equally sees that the end of those connections separates him completely from matter, and leaves him alone related to the spirit in whose image his intellectual part had been ordained and associated with perishable Nature.

It is mine, however, to speak of man as he exists upon earth, to point out his affinities to the objects which surround him, and to indicate the influences and changes to which he is liable. It is, however, only a glance at some small portion of this vast field which can be taken in an hour; and a life-time could not compass what is useful to be known in the walks of physiology, and as they traverse the recesses of pathology and therapeutics. Before we can begin, however, to investigate the functions of living beings in their healthy and morbid states, we must know something of the structure through which they are performed; and this is distinguished by great variety, especially in the animal kingdom. Numerous complex organs are here introduced which have no existence in plants; and where the office of each organ is the same, the structure of each is variable in the different species of animals. It is in plants alone that we meet with little else than what is strictly essential to organic life; and so perfectly co-extensive with animated nature is the fundamental plan of life, that what composes the essential structure of plants is also at the foundation of animal existences. It is in those vessels, or in such as are closely analogous, which carry on the processes of assimilation and secretion in the vegetable world, that we must look for growth, nutrition, secretion, &c. in animals, and what, therefore, is superadded to the organic mechanism of the latter is at most but incidentally subsidiary to the fundamental structure. The same order of simplicity prevails, also, throughout all the mutations to which animals and plants are liable. If disease beset the plant, it is but a

In moral attributes, such as willing & perceiving,
 respect to the special functions of instinct,
 they however either scarcely or existences in man,
 on the manifestations of reason.

* See Introduction to 911-912, 913-914, 915-916, 917-918, 919-920, 921-922, 923-924, 925-926, 927-928, 929-930, 931-932, 933-934, 935-936, 937-938, 939-940, 941-942, 943-944, 945-946, 947-948, 949-950, 951-952, 953-954, 955-956, 957-958, 959-960, 961-962, 963-964, 965-966, 967-968, 969-970, 971-972, 973-974, 975-976, 977-978, 979-980, 981-982, 983-984, 985-986, 987-988, 989-990, 991-992, 993-994, 995-996, 997-998, 999-1000.

modification of the physiological states of the vascular apparatus, and when the latter gives way it is only a restoration of the more natural processes. And just so with man and animals. The diseases of each are only variations of the ordinary condition of the simple instruments of life, and as that condition fluctuates, so will there be health, disease, or convalescence. Whatever may befall a complex organ, it is to its minute apparatus that we must look for the radical evil, and it is there our means of correction exert the salutary changes which they may introduce.

But, the mechanism of which I have been speaking would be as useless as the watch without its spring, were it not moved by a power equally adapted to all the processes of animated nature. The same stillness would prevail in one as in the other. There could be no manifestations of life, without an active principle of life; and since the results in organic mechanism are every where nearly the same, we unavoidably infer a common moving power throughout,—the same in plants as in the higher kingdom. Thus also we find an universal resemblance in the essential mechanism and in the power by which it is maintained in action.

To this power, for conventional purposes, it is convenient to apply a name. That which moves the mechanism of a watch, we call a spring; and whenever the term is applied in connection with that mechanism, it is suggestive of the office which it performs. I doubt not that all of you regard it as a convenient, and even useful name. The spring of a watch reminds you at once of the mechanism which it controls, and even of what is going forward in relation to time. Coming to the mechanism and phenomena of organic beings, we witness nothing in inorganic nature or among the contrivances of art which bears a resemblance to either of the former. We therefore infer the existence of a power, by which one is moved in giving rise to the other, as unique as organization and its results. This power, for conventional purposes, as in the other case, has been generally called the vital principle, or the principle of life. The term, also, as in the other instance, is suggestive of much of the diversified mechanism to which it appertains, and of very many of those unique results of which it is the efficient cause. It is a term which most men have understood, and have employed as significant of a peculiar power, till quite recently it has been given out that life is a dream of the imagination, and that not a little of all this phantom may be represented by the cunning devices of man. But being determined myself to follow the well beaten path of nature, and to hold on upon Truth, rather than to seek eclat in violations of either, it will become my pleasant duty to place you honestly in pursuit of both, and to show you the snares by which they are surrounded. I speak, however, in a general sense; for there are those who have as honestly imbibed and promulgated the errors which sap the foundation of medicine, and for whom I cherish the deepest respect as philosophers in those departments of science which it is their province to cultivate.

We have now before us, then, a principle of life;—something, to be sure, not quite so tangible as the spring of a watch, but quite as well

understood by the results to which it gives rise; and I suppose in a practical sense, at least, its greatest adversary would make a stout resistance in its defence.

Let us look a little farther at this spring of life. Do you see nothing else than an unvarying movement of wheels; nothing besides some special result as simple as that of the index of a dial? Do you not see the plant uniting the elements of matter into organic compounds, while the animal carries forward those compounds to yet greater perfection? Do you not find a great diversity of secreted products in every plant, and that according to the nature of the species,—according even as every part differs from another part,—and that, too, forever the same in the natural state of the being? What variety of odors, what an exact but endless variety is offered to the taste and to vision! What strange diversity, yet always precise; while the action of this almost endless series of organic products is always the same upon every part to which it belongs; and yet that which is the product of one part is often destructive to all other parts of the same being by which it is generated. But we have no time to pursue what is apparently without end. The brief suggestions which I have made will remind you of a thousand others of a similar nature, and satisfy you at your very first step in the vegetable kingdom, at the very threshold of life, that you have entered a world which has no analogies in composition, in structure, in powers, in functions, in tangible and in intangible results, with any of the conditions or phenomena of inorganic nature. Glancing again, at the animal kingdom, it is all the same as respects the essential conditions of life, the same exact variety, the same functions, products, and other endless phenomena, with smaller differences in respect to each than such as distinguish that elaborate structure where all the important processes are carried on.

You begin, therefore, to realize the necessity of a peculiar power for all this unique variety, and the convenience of some term which shall distinguish it from every other power, and which, as far as possible, shall be expressive of its important offices. You are already prepared by this superficial view of the beginning of our demonstrations to take up your steady march along this fascinating path of nature, to be conducted along rather by the steady light which she may afford, than by those gleams or flashes with which art may attempt to beguile your imagination. I freely concede that one is a task, while the other is a pastime; that one involves the widest and a toilsome research, while the other is so purely a matter of sense as to admit of nothing else than an agreeable exercise of vision. Such of you as may prefer the former, will become enlightened physicians, will find in organic inquiries the best of your enjoyments, and will realize in yourselves what gives the highest value to man; but such as will be satisfied with the illusions of sense, as they abound in the outskirts of medicine, will become the victims of sense, and your patients the victims of error.

As you advance in the knowledge of Physiology, you will see that the effects of life are so various, and so obviously influenced by natu-

* See Physiology of Life, p. 135-137

ral agents, and even by what is within--by the mind itself--you will necessarily conclude that the principle of life is also unlike all the other powers in nature in being endowed with certain properties, and liable to certain changes, which are totally unknown to the inorganic world. You will see, for example, that this principle is variously acted upon--and according to the nature of the agents, and that motions and other effects ensue more or less in conformity with the influences which are exerted. These phenomena have given rise to an analysis of the principle of life; and practical uses as well as philosophy have ascribed to it a property of irritability, as well as of mobility;--just as they have to the soul the properties of judgment, reflection, &c. Mobility implies the power of acting, and is a very convenient name among those who are inclined to understand each other. Irritability has been long in use to denote a peevish mind, and by a little modification of its import in that relation, we shall find it a very convenient and useful term to denote the property in organic life upon which all things make their impression, and through which the moving power brings the mechanism into action.

So far, then, and much farther, all things are common to plants and animals; the whole assemblage of which constitutes their essential or organic life. But there are certain things peculiar to animals, and, therefore, as there is reason to believe, are totally wanting in plants. The latter, for example, neither see, nor hear, nor smell, and these are functions which many are apt to suppose are the very essence of life. But this is a very false conclusion, for the animal would live just as well without eyes, nose, or ears. This is distinctly seen in the condition of the fœtus, and even during sleep; for then organic life is alone in operation. Looking, also, at the internal structure, we find a remarkable system of organs in animals, of which no trace can be detected in plants. That system, according to its different parts, goes under the names of brain, ganglia, and nerves, and it is found to be especially subservient to the senses, and to the soul and instinct. It also establishes harmonious relations among the more complicated organic structures of animals; and it is a medium through which that harmony may be disturbed. There is nothing like this in plants; and yet they have as much of what is truly essential to life as the most perfect animal. What is superadded to the latter is for his convenience, his enjoyments, and to balance nicely his more compounded structures.

The peculiar functions of which I have now spoken are assembled into two genera, one of which is called sensation, and the other sympathy. Sensation comprehends seeing, smelling, hearing, tasting and feeling; while sympathy is the office by which harmonious relations are established among the complex structures. You perceive that they are very good names, and are quite expressive of what they are intended to mean; though here, as with every thing else which implies the existence of life, many have been disposed to quarrel them out of the language of science.

Thus we have got two comprehensive functions which are peculiar to animals,—sensation and sympathy.*

* See Institute,

These functions imply the existence of two properties of the principle of life, which are as peculiar to animals as are the functions which originate in them. One of the properties is called sensibility, the other the nervous power. Sensibility, therefore, is the property upon which sensation depends, and the nervous power is the agent of sympathy; while the nervous system is the part or organ in which they reside. You perceive, also, that these are very good names, and are very significant of what they stand for. It is true, that many have made the great mistake of supposing that the nervous system is intrinsically concerned in the organic processes of animals; but since those processes and their results, such as growth, secretion, &c., are essentially the same in plants as in animals, and as plants are destitute of nerves, and possess no nervous power, you readily see the nature of the blunder. Finally, sensibility is a good deal allied to irritability; since, while all things make their impressions upon irritability in absolute life, it is upon sensibility that agents operate in giving rise to sensation. Thus, for example, it is upon the irritability of the heart and blood-vessels, and upon the sap-vessels, that the blood operates in one case, and the sap in the other, and thus maintain the several parts in action. Cathartics do the same in respect to other organs, and heat acts upon the same property throughout the universal body both of animals and plants. And so of all things else in the main department of life. Coming to sensibility, this is acted upon in the retina by light, in the acoustic nerve by the vibrations of the tympanum, &c., in the Schneiderian membrane by odors, and so on. You readily see, therefore, the distinction between irritability, which is common to plants and animals, and sensibility, which is peculiar to animals.

What I have now said of the superaddition of certain organs, properties, and functions to animals, has given rise to a division of their life into two parts; one of which embraces what is truly essential to life, and belongs equally to plants, and is called organic life; while the other, or non-essential, and which is peculiar to animals, is called animal life. Nevertheless, it should be understood that such parts as are most essential to organic life pervade all the organs which compose the division of animal life, since growth, nutrition, &c. are as perfect there as in plants themselves. The nervous system, also, being rendered subservient to the organic life of animals, is carried into all parts of their organization; although the cerebro-spinal system belongs, intrinsically, to the division of animal life. The nervous power is thus rendered an agent by which all parts are balanced in their healthy functions, by which all parts are rendered sensitive to the condition of each other, and by which, when one becomes disturbed, another, or all other parts, may be thrown into disordered action. In the natural state, for example, if the skin be chilled and perspiration checked, the nervous power immediately excites the kidneys to an increased secretion of urine. Another plain example of an analogous process occurs in every act of respiration, and the process of respiration exemplifies exactly, what is, or should be meant by sympathy. The mind and its passions are also constantly bringing the nervous power into an endless variety of influences, both in organic and animal life. In the former case, we see

its operation directed upon the stomach when vomiting is brought on by the imagination, and upon the capillary blood-vessels of the face, when shame or anger suffuses the countenance. There is nothing like all this in plants.

We have thus a great symmetrical system, in structure, properties, functions and organic results, which is alike common to all animated nature, while certain additions are provided in animals to answer some special ends of their being. You all see that it is a consistent, a harmonious plan, and that it is only when we depart from the obvious path of nature, that incongruities begin to appear. I say you are already convinced that truth in physiology is just as simple and as easily comprehended as it is every where else. To beget conviction, it is only necessary to present it in its naked simplicity, and it will then be self-evident to any mind that has not entangled itself in the prejudices of error. Hence, too, you will readily appreciate the importance of beginning right, and with a determination to reject whatever conflicts with the self-evident propositions of truth. Whatever infringes upon the consistency and the unity of the great plan of organic nature, you may depend upon it, is the spurious work of man. I do not mean, however, that you should turn your sight from error as it dances before you; for whatever is dignified in truth will always gain by any just comparison; and you should know the false that you may assist in restraining its progress.

It is true, the school of eclectics, the *In-Medio-tutissimus-ibus* school, will tell you that it is their province to sift the wheat from the chaff, and that you have only to hold your hats as the grain runs out; that theirs is the school of order, of harmony, of modest pretensions; that Truth is in their disinterested and holy keeping; that they alone can be trusted.

“They hang between, in doubt to act or rest.”

Such, you see, gentlemen, is my solicitude for your safety, that I have again wandered from my subject to show you the importance of not departing from it yourselves. But I can only now present you the great landmarks which should guide your steps throughout all that domain of nature which it is our province to cultivate. Nor have I done more than make a general survey of animated existence as presented in its most natural aspects. Looking at this alone we should imagine that it is all without change, and that every living being is destined to live on forever. There is nothing in the perfect state of animals or plants which denotes their mutability beyond what is incident to growth and nutrition,—nothing of the liability of all to disease, or to death. All this is inferred from another series of observations;—and here we pass into the vast fields of pathology and therapeutics. But there is no possibility of entering those regions but by the great domain of physiology. It is true, shorter cuts have been often attempted, and in recent times it would seem almost as if they had been overrun by foes and plundered of all that is valuable, or which entitles them to our respect or attention. Your help is wanted in maintaining the integrity of nature; in repairing the breaches that have been made in the bulwarks which she has erected. You will find much in the artificial systems of physiology that is so estranged from nature that you will have no chance of smiling even at a clum-

sy caricature; and when you turn to pathology and therapeutics, as managed by the same philosophers, you will be amazed to see how these three branches of science have been stripped of their relations to nature. Should you, however, be inclined to follow those inquirers who have been guided by the light of truth, you will find all my assurances sustained by your own observations. You will find nothing inconsistent in any branch of your pursuits, and that the whole is bound together by the closest affinities. You will find that physiology, in its connection with organization, lies at the foundation of pathology and therapeutics, and of all those intermediate changes which make up the transient or permanent differences among individuals of the same species. All the changes that may befall the most natural state of the being, from the most aggravated forms of disease to temperament itself, are intrinsically nothing more than the physiological states more or less turned from their natural standard; while therapeutics is only the method of turning them back again. For great and wise purposes, the properties of life are rendered mutable, and as one cause or another, and according to its virtues, may make its impressions upon irritability or sensibility, so will it be felt, and corresponding effects will follow. If it be miasma, fever may ensue, and then, perhaps, a cathartic, or an emetic, by a different impression, will place nature in the way of passing again to her ordinary state. All the changes, too, which constitute the different forms of disease are attended by such modifications of irritability and sensibility, that the subjects of such changes are very differently affected by physical agents than in the condition of health. All this, too, will be according to the combined circumstances which make up the nature of the change; and it is the finding out of these circumstances in every case of disease, and at all stages of its progress, and adapting our means of cure in conformity with them, which form the greatest difficulties in practical medicine.

Now, gentlemen, this mutability of the properties of life is at the very foundation of the healing art. When they are driven from their natural standard to a morbid state, it is more or less their tendency to return to their healthy condition. This tendency may be often greatly promoted by art; but in many instances, as in the self-limited diseases, it so far transcends all artificial impressions, that, in a general sense, it will admit of little or no interference. This great law, therefore, is the very basis of medicine. Without it, remedial agents would be powerless; the knife of the surgeon, and his caustic and poultices, would have had no existence. It is the sole dependence of plants and of the brute creation. All animated nature, indeed, would utterly perish without it. Galen in one line expresses beautifully the whole extent of the doctrine. "*Natura malum sentiens gestitat magnopere mereri.*" *Nature cast down desires greatly to be assisted.*

The general tendency, of which I have now spoken, in the properties of life to return from their morbid to their natural state, whether spontaneously or brought about by art, has been long known as the *Vis Mediatricis Naturæ*—the recuperative power of Nature. You perceive, gentlemen, that this also is a very good name, so only you agree to understand alike its proper import. None understood it better, or has ex-

pressed it better, than the father of Medicine. "*Natura deficiente*," he says, "*quicquam obtinet mediæ ars, perit æger*." If nature come not to the aid of the medical art, the sick man dies. And Celsus to the same effect. "*Natura repugnante, nihil proficit medicina*." If Nature do not co-operate, medicine is useless. Or, as the poet has it,

"When Nature cannot work, th' effect of art is void,
For physic can but mend our crazy state,
Patch an old building, not a new create."

I have said that physiology is so completely at the foundation of all the changes which befall the living being, that the same great principle stretches from disease to those differences among mankind which are known as the temperaments, and even to the changes which are effected in plants by cultivation, by changes of climate, &c., and in animals by analogous influences. And here I have thought that I cannot do better than to illustrate this subject by a brief analysis of the temperaments of mankind; and for this purpose I will be indebted to a page which I have already placed before the world, but too recently, however, to have engaged your attention.

The temperaments may be regarded as embracing the innate as well as acquired peculiarities of constitution; for although the latter depend upon causes that are relative alone to the individual, the former or innate constitution has been brought about, at some anterior generation, by the physical agencies of life. This is the true temperament, and belongs to masses of mankind.

Idiosyncrasy is only a variety of temperament and constitution, and like those, therefore, depends upon some peculiar modification of the properties of life, especially irritability; but only so in relation to a very few particular agents. It is peculiar to individuals, rather rare, and may be hereditary or acquired. This peculiarity is not unfrequently the cause of the favorable or deleterious effects of certain remedial agents, of certain kinds of food, &c. We see the important principle illustrated every day, every hour. Here is a subject who is salivated by the external application of a few grains of mercurial ointment, and in whom various diseases may be speedily extinguished by this simple use of the remedy. But here is another, in whom the internal administration of an ounce of calomel may produce no constitutional result, and make no impression upon disease. Or, it may be in another case of extreme susceptibility to the action of mercury, that the agent always displays the effects of a profound poison, aggravating fever and other affections, or, in the absence of disease, greatly deranging all the functions of life. Most men are poisoned by the slightest contact with the *Rhus vernix*; but now and then an individual handles it with impunity. Muscles and some other animals are always poisonous when eaten by some people, though generally good articles of food.

Constitution comprehends all the peculiarities of the individual; the temperament, idiosyncrasy, conditions relative to age, sex, habits, &c. It is, therefore, liable to many variations at all periods of life. The prevailing characteristics of each of the elements may remain, but yet so modified, that what is known as constitution may be "broken down."

The same principle is concerned throughout, whether in respect to constitution, temperament, or idiosyncrasy. It is the same as prevails habitually in respect to the naturally modified irritability of different organs in man, and in all animals, and in plants; that which renders the product of one organ innoxious to some parts, but morbid to all other parts,—that which renders the eye susceptible to the undulations of light, the ear to the undulations of air; and so on. The principle, and its everlasting, unchanging laws, are every where, in all that relates to organic beings, whether in respect to the system in its abstract condition, or as relative to external agencies. It is a great and wonderful principle, a perpetual study for the philosopher, ever pregnant of variety, ever illustrative of the peculiar character of the properties of life, of their natural modifications, of their instability, and forever supplying fresh sources of interpretation of the laws which the properties and actions of life obey.

It is evident, therefore, that temperament, constitution and idiosyncrasy are constituted by certain acquired or transmitted conditions of the vital properties, which form a part of the natural or habitual state of each individual, and from which arise various degrees and kinds in the susceptibilities to the action of physical agents, and certain peculiarities, also, in the material condition and conformation of parts, especially the external. By studying these sensible peculiarities, as well as the phenomena of life in their natural and morbid conditions, we infer the peculiarities of the natural vital conditions in different individuals, or their natural constitution and temperament, or any more remarkable idiosyncrasy. They reach, also, to the mind, which is apt to bear certain relative peculiarities to those of the organic states.

In the farther consideration of this subject, I shall regard those peculiarities of constitution which are mostly of a determinate character, and include them under the general denomination of temperament.

The physiological differences between temperament, idiosyncrasy, and constitution, are neither great, nor of much practical importance. Indeed, so allied are they in principle, that a common philosophy determines the remedial treatment, which is always more or less modified by temperament. Each should be considered along with the modifying influences of habits, climate, &c.

Temperament and constitution do not depend, as supposed by some writers, upon the special development of particular organs; though this is true of some of the vicissitudes of age. The former have their foundation in the system at large, and are apt to be transmitted by one or by both parents; or, the transmitted peculiarities may come from a remote ancestor, and not from the immediate progenitor. This last peculiarity is analogous to one of the characteristics of the scrofulous diathesis, where it passes over one generation and reappears in the third.

It appears, therefore, that temperament, whether innate or acquired, is due to the slow operation of causes upon the vital constitution, just as it is in respect to the habitual use of tobacco, of opium, &c., or as it respects certain morbid causes.

In the latter case, the modifications are more or less transitory; but

may be so ingrafted as to be transmitted, for a time, like the permanent temperaments, from parent to child, as seen of some diseases, such as rheumatism and gout, or of predispositions to diseases of a transient nature, as in small-pox, or even ordinary fever. Coming to hereditary diseases of a permanent nature, as scrofula, we run from the transitory phenomena of vital habit, which respects the use of tobacco, opium, &c., by an intimate analogy, into the permanent temperaments; and from these we are conducted by the same philosophy, which respects the operation of physical agents in modifying the properties of life, to those more remarkable peculiarities which spring up in animals from domestication, and in plants from changes of climate and soil.

It is scarcely probable that differences in temperament have, often, any appreciable effect on the elementary composition. Differences, however, obtain in respect to structure, as seen in the general form, the proportions of the limbs, the features, &c., while more remarkable corresponding analogies are witnessed in the herbaceous and arborescent habits of the same plant, as it may be subject to the influences of a tropical or cold climate, as the *Ricinus communis*.

Great differences arise not only in respect to the influences of the same remedial agents, from the mere circumstances of temperament, but morbid causes may be equally various in their operation. The same causes may be very apt to affect one temperament, while they will rarely have an effect on another temperament.

The temperaments as designated by the ancients, and retained by the moderns, are divided into the Sanguine, the Melancholic, the Choleric, and the Phlegmatic. The artificial habits of the moderns have added a fifth, or the Nervous.

It is not usual to find all the attributes of each temperament united, while some of the whole may be blended in the same individual. Nevertheless, the characteristics of one or the other generally predominate.

Temperament is most distinctly pronounced at adult age.

1. *The Sanguine Temperament*.—Unlike the other temperaments, the characteristics of the sanguine are perpetuated from infancy, and perhaps, therefore, may be considered the most natural. The skin remains soft and delicate; the limbs rounded, and full; the superficial veins, unlike those of infancy, large, conspicuous, and blue, especially about the head and temple; the complexion fair, florid and animated; the eyes large and blue; the hair light, or red, or of intermediate hues.

Sensibility and irritability are strongly pronounced; the great development of the latter giving the principal determination to the sanguine temperament. The blood, in consequence, stimulates the heart to more frequent, high, and regular action, maintains the capillaries in a lively and plethoric state, and thus determines the redness and softness of the skin. Other vital stimuli, also, operate with greater intensity than in other temperaments. For the same reason, the secretions and excretions are rapid and copious, and are little liable to vacillation in the ordinary conditions of health. All things else move on in a corresponding manner; the whole assemblage of which beautifully illustrates the true philosophy of life.

The great development of sensibility contributes, also, its considerable part to this temperament. The senses are ever on the alert; and here, as with irritability, external objects make their impressions with great effect and rapidity. Perception is rapid, reflection quick, imagination lively, memory prompt. The succession of ideas is too rapid for comparison, and hence the judgment is infirm, unless associated with genius; when it is distinguished for eccentricities. This is exemplified in the poet, Byron, and in the warrior, the Marshal, Duke of Richelieu,—“that man so fortunate and brave in arms, light and inconstant, to the end of his long and brilliant career.”

Inconstancy and levity are the great moral attributes of the sanguine. Variety and enjoyment never satiate. Devoted to sensual gratifications, they are in love with all female beauty, and are inconstant to a mistress, if not to a wife; yet are they honorable in all things else.

The sanguine is eminently generous or prodigal, and the end of gain is the purchase of pleasure. Quick in anger, he is soon cool, or he is impelled to hasty decisions that are soon regretted. A challenge to a duel would be gladly abandoned, did not a sense of pride urge him on to the combat. Revenge and envy have no hold upon this constitution.

It is evident, therefore, that the prevailing diseases of the sanguine temperament are inflammatory; that the organs sympathize readily and greatly with each other, and that the sympathetic affections are disproportionately greater than the primary affections. Infancy always partakes of this temperament; but if it be truly constitutional, the infant is liable to extraordinary demonstrations of its fundamental nature. The irritation of a tooth, for example, is more apt to produce convulsions, and intestinal derangements still more so, or to lay the foundation of cerebral diseases, &c. Anger being quick and vehement, here displays its instant effect in developing inflammations and hemorrhages. But love is instable, and as envy, grief, and jealousy torture not the mind, so do they not the body.

As external causes, whether natural or morbid, make their impressions rapidly and profoundly upon the sanguine temperament, and its diseases being active and violent, remedial agents should be prompt and decisive, as in infancy; but here, also, for the reasons which are relative to the first period of life, remedies are also profound and speedy in their operation. And since the prevailing disease of this temperament is inflammation, bloodletting is the principal means of cure, and will require but little co-operation from other agents. If early applied, and carried to its proper extent, it will nearly extinguish the most violent inflammations during its first application. The test of this extent will be also more exactly determined in this, than in other temperaments, by the subsidence of symptoms during the progress of the operation. It is in this temperament, also, that the philosophy of the vital influences of loss of blood is most evidently shown.

2. *The Melancholic Temperament.*—The melancholic temperament has certain points of resemblance to the sanguine, though they are strongly contradistinguished. The general external aspect of the sanguine is cheerful; that of the melancholic, dry, stern or gloomy, and excites no liveliness in others, though it command respect, and

even admiration. The solids predominate in the melancholic; the capillaries show less blood, though the veins are large and more prominent, but less transparent than in the sanguine; and unlike the latter, the skin is darkish, or inclining to yellow, thick, coarse, and hard to the lancet. The blood flows more freely from the sanguine when the skin is pricked; and this exemplifies the state of the capillary circulation at large. The same principle obtains, therefore, in the pulmonary circulation, and hence in part, the blood is darker in the melancholic than in the sanguine. The eyes of the former are darker and less prominent than in the latter; and the hair is dark, coarse, or stiff, eye-brows large, black, and often projecting; the muscles and tendons, like the superficial veins, stand out, from the absence of that cutaneous fat which gives rotundity to the body of the sanguine.

It is easily seen, therefore, that irritability and sensibility are comparatively dull in the melancholic. External objects do not make the strong and rapid impression upon the senses as in the sanguine; and from the obtuseness of irritability, the action of the heart is slower, the capillary blood-vessels are less charged with the vital fluid, the secretions and excretions less, and more slowly performed.

The melancholic temperament is the principal abode of genius; embracing a large proportion of those great men who have unfolded the laws of nature, or have made the highest advances in the arts, or have astonished the world with deeds in arms, or with the achievements of the statesman, or the orator, or the painter, or the poet. Here is witnessed the highest intellectual renown at the very dawn of manhood; and here it is that we often meet with genius struggling with those adversities which arrest the ambition of other temperaments. The melancholic is forever indomitable; rising in determination as obstacles rise before him. Inflexible in purpose, the passions are disciplined to urge on an arduous enterprise, or, if allowed to become impetuous, it is to accomplish the decisions of the understanding. With equal facility he concentrates his mind upon abstract inquiries, or at the next moment, sends it abroad over the widest theatre of its operations. He is bold and brave, never fearing death, nor wantonly incurring danger. He moves steadily forward, though he does not move, until he has explored the path before him. His imagination, therefore, is of the highest order, being disciplined by the sterner faculties. It is such an imagination as is always an element of genius; such as contemplates the realities of life and the truths of revelation. He is thoughtful, grave, or sad, but may ~~tuff~~ *tuff* his mind to great elevation, and great sublimity and enthusiasm, and often soars on poetic wings through the regions of heaven. The sanguine on the contrary delights in the *romance* of fiction. *me/*

Honor holds its empire in this temperament, however it may be wanting in human sympathies. If pledged to a good or bad action, it is fulfilled. The melancholic is generally fervent but dignified in his attachments, or looks with indifference or with scorn upon humanity. A few, like Tiberius, are fearful, perfidious, suspicious, and cruel; and others, like Nero or Richard, insensible to danger, and ever ready for the work of death.

As with sensibility and irritability in their natural aspects, so it is in their relation to morbid and remedial agents. The coincidence is universal. The former are slow in establishing morbid changes, many are inoperative which readily light up the flame of disease in other temperaments; and the passions are subdued by the melancholic into mere agents of the understanding. But when morbid causes have made their impression, the dullness of irritability and mobility explains why disease is apt to be obstinate, and why remedial agents operate with less rapidity than in the sanguine. The vital properties and functions being slowly susceptible of morbid changes, they are slowly altered from their morbid states.

It is easily inferred that the diseases of the melancholic are mostly of the digestive organs, and that their removal is tedious. It is also manifest that these, and other affections, are slow in developing diseases of other parts, and that the brain and the mind must be most likely to sympathetic disturbances. Hence it is that hypochondriasm and insanity are apt to supervene in the melancholic temperament.

Cathartics are demanded more by the melancholic than by any other temperament; though their exigencies have a special relation to the disorders of the digestive functions. Bloodletting, also, is often necessary to reach these chronic maladies; and although its delay in the grave forms of inflammation be less hazardous than with the sanguine, its necessity is as great, and its extent and frequency of repetition are greater. It is here, too, that the greatest demand is made upon the *materia medica* for auxiliary means.

3. *The Choleric Temperament.*—The choleric is intermediate between the sanguine and melancholic temperaments; and although it form the sanguineo-melancholic, it possesses characteristics which give it an individuality. The skin has greater fullness of the capillaries than in the melancholic, and therefore greater softness and warmth, but less than in the sanguine. The pulse is intermediate in fullness and frequency. The secretions and excretions moderate and uniform. The healthy functions performed with regularity and ease. The choleric is tenacious of his own rights, but less disposed to infringe upon the rights of others than the melancholic, while he has less generosity than the sanguine. The higher faculties of the mind correspond with the other characteristics of this temperament, being generally distinguished for their moderation.

Irritability and sensibility holding an intermediate degree between those of the sanguine and melancholic, external agents operate with a relative effect and rapidity; so that the organic functions move on without frequent or profound interruptions, and diseases yield to a more compound treatment, though less readily than to the simpler means required by the sanguine, but more speedily than in the melancholic.

4. *The Phlegmatic, or Lymphatic Temperament.*—The phlegmatic is characterized by slothfulness of mind, and by a simpler display of vegetative life than any other temperament. The flesh is soft, the countenance pale, the hair delicate, and the fat amounts to an incumbrance. The limbs are rounded, feeble, and without expression.

The veins are small, and lie deep. The pulse is small, feeble, and

soft; arteries small, and the capillaries deficient in blood. Irritability is dull. Sensibility is obtuse, and perception weak, which greatly circumscribes the senses as an avenue to the mind; while

“Fat holds ideas by the legs and wings.”

But, with all the intellectual dullness and bodily indolence, which distinguish this temperament, it is obstinate, fearful, suspicious, and avaricious.

The organic functions of the phlegmatic are easily liable to interruption, though morbid causes, unless intense in their nature, make their impressions feebly. The mind, and its predominant passions, have, of course, but little agency in the production of its diseases. Disturbances, however, seem to arise from the mere inertia of the vital powers; and when morbid causes make strong impressions, the properties of life often go down, at once, to near the verge of extinction. So, also, do active remedial agents operate with a relative effect. Emetics are scarcely admissible; violent cathartics prostrate excessively; and any unnecessary extent of bloodletting breaks down the whole energies of the body. This temperament therefore requires great moderation of treatment.

5. *The Nervous Temperament.*—The nervous temperament displayed itself feebly among the ancients, but has been brought to a high maturity by the progress of civilization. It is the only temperament where the primary causes may be traced, which consist mainly of such as are attendant on indolence and sedentary pursuits. It involves alike therefore, the rich and the poor, the sensual devotees of fashion and the plodding shoemaker, the laborious student and the readers of romance.

The nervous temperament is founded upon the sanguine, or the sanguineo-melancholic, and is either transmitted, or springs up originally in the individual. It is therefore the most artificial of all the temperaments, and is susceptible, individually, of great improvement. It is shown externally by a general aspect of feebleness, a spare body, and small, soft muscles, which are incapable of much exertion.

An unusual predominance of sympathy is the leading characteristic. Irritability is also strongly pronounced. Hence, slight disturbances, even of unimportant parts, give rise to greatly disproportionable sympathies in the more important organs; and these secondary results will be still more intense if the primary disease be seated in any important organ. The functions are constantly subject to irregularities, especially those of the abdominal viscera. If the subject be addicted to the causes of this temperament, he is rarely free from indigestion, and an attendant train of other evils, according to the nature of his indulgences or pursuits.

Diseases, however, are not as violent as with the sanguine, nor as profound as with the melancholic. The mind is irritable, but the passions not violent, though they readily disturb the organic functions. Such as display themselves depend much upon the habits and occupation of the individual.

Remedial agents operate with power, the same coincidences existing between their effects and those of a morbid nature, as in other tem-

peraments. Moderate impressions, therefore, made upon the alimentary canal are sensibly felt by remote parts; and in this temperament, particularly, the peculiar principle upon which leeching operates is well illustrated.

What I have now said, specifically, of the temperaments is liable to certain qualifications.

Different epochs of life appear often to partake of a particular temperament; one subsiding into another. The sanguine is most characteristic of infancy and childhood, the melancholic and choleric of middle age; and the phlegmatic of old age.

The several temperaments are also often blended, more or less with each other, in the same individual. When thus combined, they are called the sanguineo-melancholic, the sanguineo-phlegmatic, &c.

They are also liable not only to the foregoing modifications from age, but from sex, climate, habits, education, &c. So great indeed is the influence of climate, that a change of residence (as from a northern to a tropical country) will sometimes gradually transmute one temperament into another; and this is particularly true of the sanguine, the melancholic and the choleric.

Accidental influences are sometimes such as to generate anomalies, in which it is difficult to recognize any distinct features of the prevailing modifications of temperament, and which may disappear with the individual, or be transmitted to his descendants.

All the varieties which I have now stated, are more or less liable to modifications of a common form of disease, and require corresponding variations in the details of treatment. They concur together, therefore, in forming a part of the difficulties of medicine, and in demonstrating the complete abstraction of organic beings from the forces and laws of the inorganic.

I say, organic beings in their most comprehensive sense. For are not the varieties which have sprung from domestication and cultivation, among animals and plants, and which are equally, and more perfectly transmitted than temperament, constitution, &c. in relation to man, integral parts of a common principle? Exactly the same philosophy lies at the foundation of the whole, and is another broad field of evidence to substantiate the unity of the vital principle, of its common laws and functions throughout animated nature, and presents the whole in a magnificence of grandeur, a harmony and unity of unfathomable designs, which forms an unutterable contrast with the physical hypotheses of life.

“ Thus, then, to man the voice of Nature spake—
Go, from the creatures thy instructions take;
Learn from the birds what food the thickets yield;
Learn from the beasts the physics of the field;
The arts of building from the bee receive;
Learn of the mole to plough, the worm to weave;
Learn of the little Nautilus to sail,
Spread the thin oar, and catch the rising gale.”—*Pope*.